



INTEC
CONTROLS

PolyGard® MGC - 4 - 5 __ - __ US
MGC - 8 - - US
MGC - 16 - - US
MGC - 24 - - US

Gas monitoring, control and alarm system

User Manual

September, 2003

Gas monitoring, control and alarm system

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Gas monitoring, control and alarm system

1 Description

Stand alone, wall mounted, micro processor based multi-point analog electronic control System for various gas, temperature and humidity detection, control and alarm.

To control and alarm maximum 24 Sensor Point (SP) for toxic- combustible- refrigerant- gases, temperature and humidity. Any combination of the AT-11/33/35/7700 gas transmitter and/or other Transmitter with 4 to 20 mA signal can be hooked up to the control unit. For every Sensor Point are 3 alarm thresholds integrated. Every alarm threshold can be assigned to one or more of the maximum 18 potential free relays.

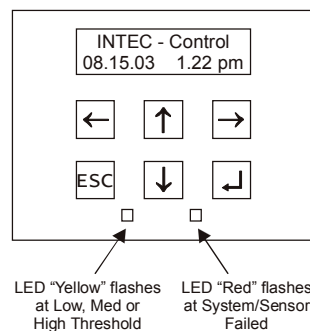
The controller can interface via 4 to 20 mA outputs to any compatible electronic analog control, DDC/PLC control or automation system.

2 Operating Instrucion MGC

The complete configuration, parameterization and service is made via keypad user interface in combination with the display screen. Security is provided via two password levels. The lower level password, level 1, allows the override or to reset system status functions. The upper level password, level 2, allows all pogramming and override functions.

Default Password lower level = 1,2,3,4

Keypad User Interface "DBT"

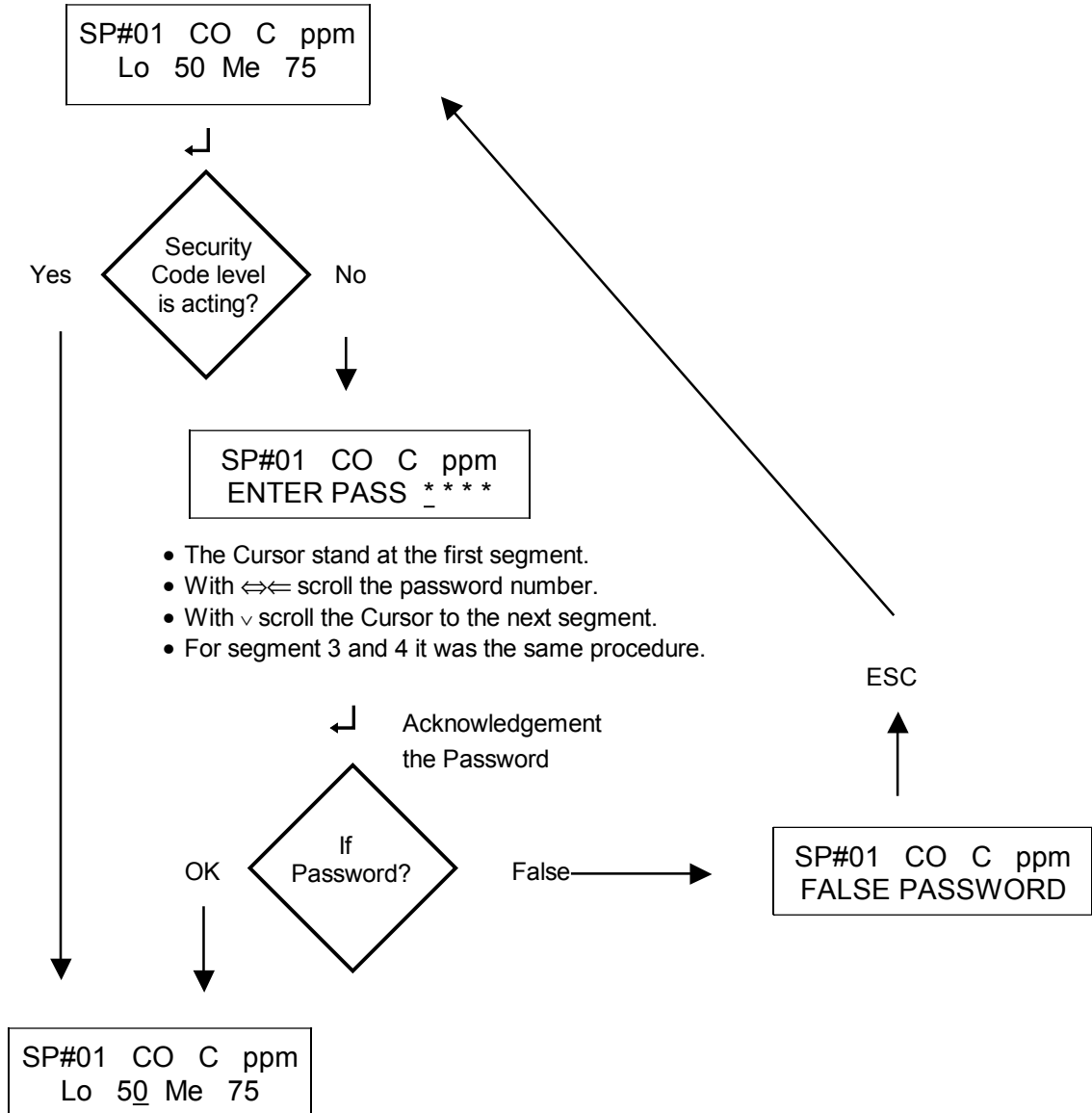


- ↔ Scrolls down & up in Main menu and Sub menus; increases or decreases a value.
- ^ ∨ Navigates through menus on the same level; moves of cursor inputing data.
- ↵ Enter sub menus; issues system reset; stores security password.
- ESC Exits programming and saves settings; returns to the previous menu level.

2.1 Setting / Change Parameter or value

Example: Change the Low Threshold for Sensor Point 1

- Open Window Threshold for Sensor Point 1



- The Cursor stand at the first segment that can be changed.
- With <=> change this segment for the Parameter.
- With ^ v select the next segment do you want change.

ESC

Load the changed Parameter

2.2 Overview Menu

Main Page
INTEC Controls 08.15.03 01:20 pm

↵

See 3.1

ESC

Main Menu	Sub Menu 1	Sub Menu 2	SM 3	SM 4	SM 5	SM 6
ESC ↵						
Reading sensor	SP#01 C CO ppm 10 5 000					
See 3.2	↔					
↔	SP#24 C CO ppm 10 5 000					
ESC ↵						
Threshold setup	SP#01 C CO ppm Lo 50 Me 75	SP#01 C CO ppm Hi 75 Hvs 15				
See 3.3	↔	↔				
↔	SP#24 C CO ppm Lo 50 Me 75	SP#24 C CO ppm Hi 75 Hvs 15				
ESC ↵						
System status	Status SP	SP#01 CO C ppm A Readv 000				
See 3.4	See 3.4.1	↔				
	↔	SP#24 CO C ppm A Readv 000				
	ESC ↵					
	Status Relay	DIO1 => 000000000 DIO2 => 000000000				
↔	See 3.4.2 ↔ ESC ↵					
	System ERROR	#01 ERR#01 07.20 SP< 2 mA SP#03				
	See 3.4.3 ↔ ESC ↵					
	System RESET	System Reset Reset Confirmed				
	See 3.4.4 ↔ ESC ↵					
System Setup	Applicats setup	System CONFIG MGC XX/XX				
See 3.5	See 3.5.1	See 3.5.1.1 ↔				
		Service OFF				
		See 3.5.1.2 ↔				
		Power ON delay 20 sec.				
		See 3.5.1.3 ↔				
		Response Time 20 sec				
		See 3.5.1.4 ↔				
		Password **** (1234)				

See 3.5.1.5

Continuation Overview Menu

M. M.	Sub M.1	Sub Menu 2	Sub Menu 3	Sub Menu 4	Sub Menu 5	Sub Menu 6
	ESC	↓	↑	↑	↑	↑
	SP setup	SP#01 CO C ppm A CO CV nnn 0	SP#01 CO C ppm L-M-H- 250 1800	SP#01 100000000 LOW 000000000	SP#01 000000000 MED 000000000	SP#01 001000001 High 000000000
	See 3.5.2	↔	↔	↔	↔	↔
	↔	SP#24 CO C ppm A CO CV nnn 0	SP#24 CO C ppm L-M-H- 250 1800	SP#24 000000000 LOW 000000000	SP#24 000000000 MED 000000000	SP#24 000000000 High 000000000
	ESC	↓				
	Relay setup	R#01 ON OFF 0 s01 s01 -				
	See 3.5.3	↔				
	↔	R#18 ON OFF 0 s01 s01 -				
	ESC	↓				
	DI setup	DI-01 000000000 Horn 000000000				
	See 3.5.4	↔				
	↔	DI-04 000000000 Horn 000000000				
	ESC	↓				
	Date/ Time	Date/Time 08.15.03 Sa				
	See 3.5.5	↔				
	↔	Date/Time 01 : 20 pm				
	ESC	↓				
	AO setup	Calibration AO#01 4mA 42 20mA 144				
	See 3.5.6	↔				
		Function AO#01 Ave				
		↔				
		Calibration AO#02 4mA 42 20mA 144				
		↔				
		Function AO#02 Ave				

3 Description Menus

3.1 Main page Menu

In the normal operation Mode the main page displays the time and date.

In the Fault Status the main page display the last fault with plain text.

Main Page / Normally

INTEC Controls 08.15.03 1:20 pm

Main page with Fault Status

#01 ERR#01 08.15 SP < 2mA SP09

3.2 Reading sensor (Main Menu)

Display the gas value and threshold status for every Sensor Point.

SP#XX	C	CO	ppm
10	5		000

⇔ ⇐ (Change window Sensor Point)

Window Reading sensor legend

Symbol	Description	Function
SP#XX	Sensor Point number	(1 to max. 24 ¹)
C/A	Operating Mode Display	C = current value mode A = average value mode
CO	Gas type	See "Select Gas type" (3.5.2)
ppm	Gas unit	See "Select Gas type" (3.5.2)
10	Current value Display	e.g.: 10 ppm
5	Average value Display	e.g.: 5 ppm
000 (Lo, Me, Hi)	Threshold Status (Lo, Me, Hi)	0 = OFF 1 = ON
*****	Sensor Point failure	Signal < 2 mA
Not Active	Sensor Point is not acting	

¹ Dependent on the configuration of the System.

3.3 Threshold setup (Main Menu)

- Display and Setting the Threshold Low, Med, High and Hysteresis for each Sensor Point.
(Setting and Change with Security level 2)

SP#XX CO C ppm	∨	SP#XX CO C ppm
Lo 50 Me 75	∧	Hi 100 Hys 15

⇔ ⇐ (Change window Sensor Point)

Window Threshold setup legend

Symbol	Description	Default	Function
SP#XX	Sensor Point number		(1 to max. 24 ¹)
C/A	Operating Mode Display	C	C = current value mode A = average value mode
CO	Gas type	CO	See "Select Gas type" (3.5.2)
ppm	Gas unit	ppm	See "Select Gas type" (3.5.2)
Lo	Threshold level 1 (Low)	50 ppm	e.g.:
Me	Threshold level 2 (Med)	75 ppm	e.g.:
Hi	Threshold level 3 (High)	100 ppm	e.g.:
Hys	Hysteresis level	15 ppm	e.g.:

¹ Dependent on the configuration of the System.

3.4 System status (Main Menu)

3.4.1 Status SP (Sub Menu 1)

- Display status of each Sensor Point.
- Manual override capability for threshold levels³. (*Security level 1*)
- Acknowledged the latching Status for each Threshold, when the latching function was setting. (*Security level 1*)

SP#XX	CO	C	ppm
A	Ready	110	

↔ (Change window Status Sensor Point)

Window Status Sensor Point (SP) legend

Symbol	Description	Setting Status	Function
SP#XX	Sensor Point		(1 to max. 24 ¹)
C/A	Operating Mode Display		C = current value mode A = average value mode
CO	Gas type		See "Select Gas type" (3.5.2)
ppm	Gas unit		See "Select Gas type" (3.5.2)
A/N	Sensor point active - not active		A = Sensor Point active N = Sensor Point not active
Ready/Error	Status Sensor Point		Ready = Sensor Point OK Error ² = Failure by Sensor Point
110 (Lo, Me, Hi)	Threshold status		0 = Threshold Status OFF (by automatic Mode) 1 = Threshold Status ON (by automatic Mode) L L = Set Threshold Status manual OFF ³ H H = Set Threshold Status manual ON ³ A A = Set Threshold Status to automatic Mode R R = Threshold latching Status ⁴ , Status can be Acknowledged ⁴ Q Q = Threshold latching function, acknowledged Alarm

¹ Dependent on the configuration of the System.

² Fault Handling. See 3.4.3.1.

³ The operating mode manual has priority before the operating mode automatic.

⁴ Activate latching Mode Threshold. See 3.5.2

3.4.2 Status Relay (Sub Menu 1)

- Display the status for each relay.
- Manual override capability for each Relay.¹ (*Security level 1*)
- Acknowledged the latching Status for each Relay, when the latching function was setting. (*Security level 1*)

DIO 1 => 000000000
DIO 2 => 000000000

Window Satus Relay legend

Symbol	Description	Setting Status	Function
DIO - 1	Status Relay module 1		Relay 1 to 9 (DIO-4/9 no. 1)
DIO - 2	Status Relay module 2		Relay 10 to 18 (DIO-4/9 no. 2)
Relay No 1 to 9 000000000 000000000 10 to 18 Relay No	Status Relay number	L H A R Q	0 = Relay Satus OFF (by automatic Mode) 1 = Relay Status ON (by automatic Mode) L = Set Relay manual OFF ¹ H = Set Relay manual ON ¹ A = Set Relay Status to automatic Mode R = Relay latching Status ² , Status can be Acknowledged ² Q = Relay latching function, acknowledged Relay

¹ The operating mode mnual has priority before the operating mode automatic.

² Activate latching Mode Relay. See 3.5.3

3.4.3 Error System (Sub Menu 1)

- Display the fault list.
- Reset Error. (*Security level 1*)

#01 ERR#01 07.20
SP < 2mA SP#03

⇔⇐ Next window of Fault list

Fault list legend

Symbol	Description	Function
#01	Numeric order of Fault list	(1 to max. 12 ¹)
ERR#01	Fault type	01 = Sensor Point fault 02 = Bus fault to AI8 - module 03 = Bus fault to DIO - module
07.20	Fault date	
SP < 2mA	Plain text Fault	SP < 2 mA – SP#XX ² (1 to max. 24 ³) Fail AI8 – XX ³ (1 to max. 3 ³) Fail DIO – XX ³ (1 to max. 2 ³)

¹ In the Menu the last 12 Fault are listed.

² Unit number.

³ Dependent on the configuration of the System.

Fault Description

Trouble	Reason	Solution
SP < 2 mA	Sensor Point not connected. Sensor Point wrong connected (Polarity exchanges). Sensor Point cable break. Sensor Point defective / not calibrated.	Check Sensor Point connection and polarity. Check cable. Check Sensor Point. Make Calibration.
Fail AI8 Fail DIO	System configuration not compatible to the connected modules. Addressing AI8 or DIO modules no correct. Bus Cable defective.	Check System Configuration. ¹ Check module Addressing. ² Check Bus cable. ³

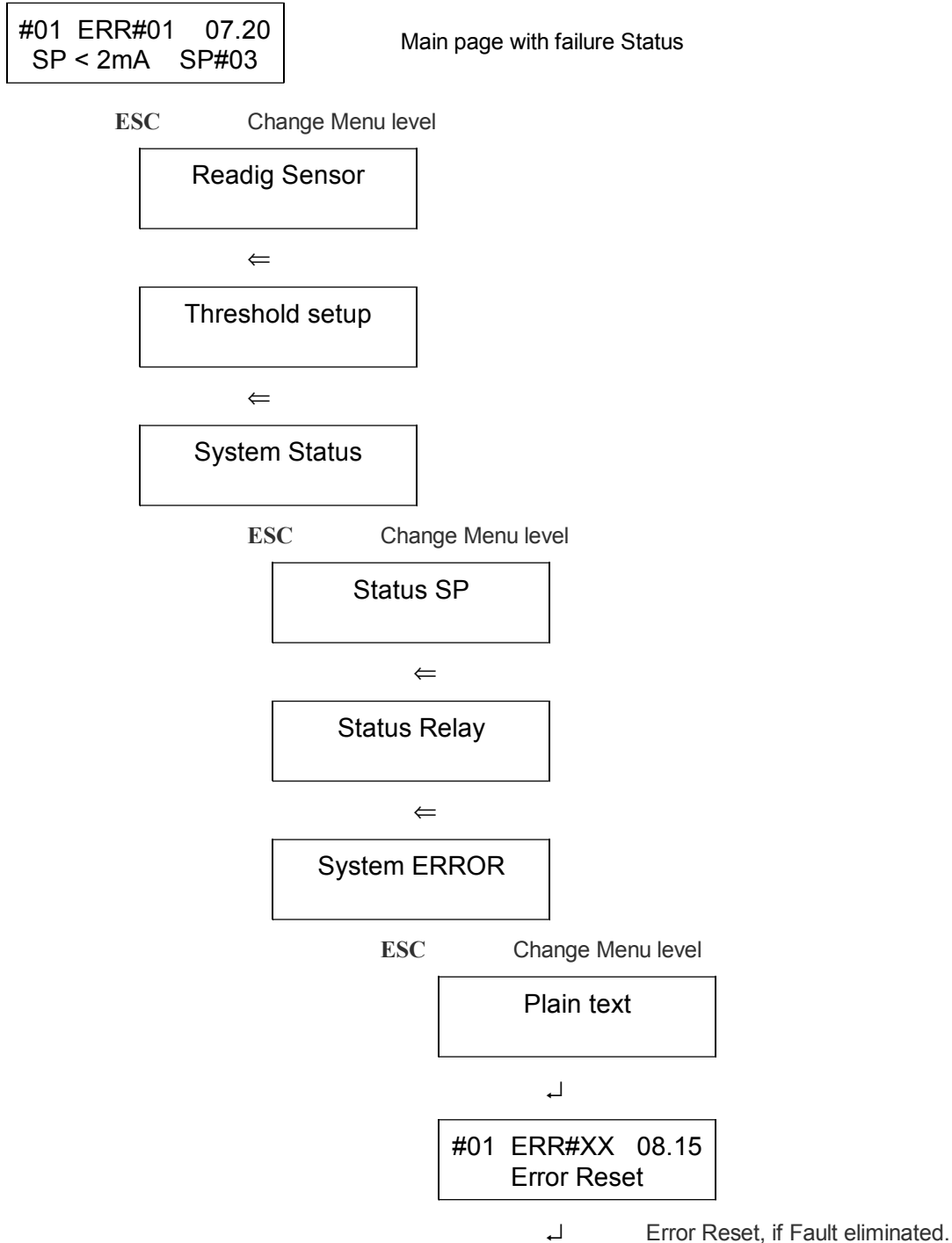
¹ See Menu “Config System” (3.5.1.1)

² See Field wiring Configuration (7) for AI and DIO Module. (Not Addressing by CGC module)

³ See internal wiring diagram

3.4.3.1 Error Reset

- Reset Error Status after the elimination of the defect with this procedure. (*Security level 1*)



3.4.4 System Reset (Sub Menu 1)

- In this Menu Reset all System fault, latching Threshold and latching Relay.

System RESET
Reset Confirmed

3.5 System setup (Main Menu)

3.5.1 Applicats setup (Sub Menu 2)

3.5.1.1 Config System

- In this menu the configuration of the System appropriate the connected input / output modules.
(Security level 2)

System CONFIG
 MGC 24/18

⇔⇐ Next Type

Window System Config legend

Symbol	Types	Connected Hardware modules
MGC 24/18	MGC 24/18	3 – AI-8 ¹ -module; 2 – DIO-4/9 ² -module
	MGC 24/09	3 – AI-8 ¹ -module; 1 – DIO-4/9 ² -module
	MGC 16/18	2 – AI-8 ¹ -module; 2 – DIO-4/9 ² -module
	MGC 16/09	2 – AI-8 ¹ -module; 1 – DIO-4/9 ² -module
	MGC 08/18	1 – AI-8 ¹ -module; 2 – DIO-4/9 ² -module
	MGC 08/09	1 – AI-8 ¹ -module; 1 – DIO-4/9 ² -module
	MGC 04/05	1 – CGC ³ -module

¹ AI-8 module: 8 x analog Input, 4 to 20 mA, for connect max. 8 Sensor Point.
2 analog output, 4 to 20 mA..

² DIO-4/9 module: Output module with 9 potentialfree relay, 4 digital Input.

³ CGC module: 4 x analog Input, 4 to 20mA, for connect max. 4 Sensor Point.
5 output with potentialfree relay.
1 analog output, 4 to 20 mA.

3.5.1.2 Service Mode (Sub Menu 2)

- Being in Service Mode will allow service personnel to simulate warning / alarm Threshold values without relays being set.
- The Service Mode will reset automatically after 60 minutes to normal operation status if not changed manual. (Security level 2)

Service
 OFF

Window Service Mode legend

Symbol	Setting Status	Function
OFF	OFF	Normal operation Mode
	ON	Service operation Mode

3.5.1.3 Power ON delay time (Sub Menu 2)

- Change Power ON delay time
(Security level 2)

Power ON delay
20 sec.

To prevent the measurement of wrong analog input signals during power on time, this time disables calculation of analog values. After the end of this time, the system works in normal operation mode.
Recommended Time = 30 sec.

3.5.1.4 Response time (Sub Menu 2)

- Set Response time
(Security level 2)

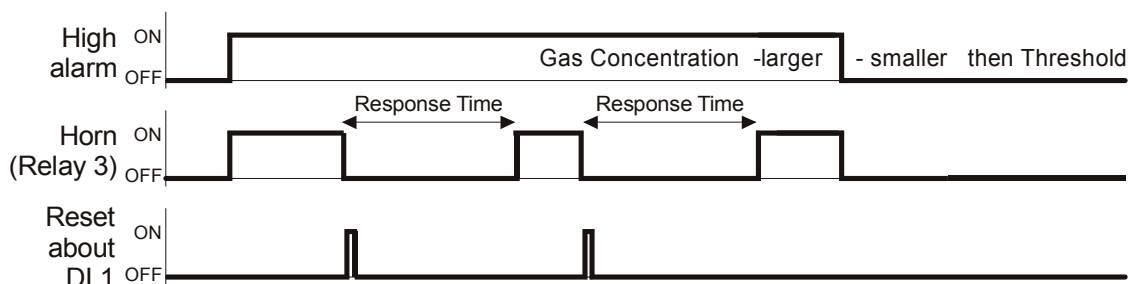
Response Time
20 sec.

After the end of this time, the horn relay is activated again if the alarm is set still.

Example:

DI 1 = Reset Horn

Relay 3 = Horn Relay (activates through High alarm SP 1)



3.5.1.5 New Password level 1(Sub Menu 2)

- Change the Password for Security level 1
(Security level 2)

Password
**** (1234)

With password for level 2 the customer password level 1 can be changed.

3.5.2 Setup Sensor Point (Sub Menu 1)

- In the menu the definition of the parameters and the assignment of the Thresholds to the relays for every Sensor Point occur.
(Security level 2)

SP#XX CO C ppm A CO CV nnn 0	∨ ^	SP#XX CO C ppm L-M-H- 250 1800	∨ ^	SP#XX 000000000 LOW 000000000
↔ Next Sensor Point	∨ ^	SP#XX 000000000 MED 000000000	∨ ^	SP#XX 000000000 High 000000000

Window Sensor Point legend

Symbol	Description	Function
SP#XX	Sensor Point number	(1 to max. 24 ¹)
C/A	Operating Mode Display	C = current value mode A = average value mode
CO	Gas type	See "Select Gas type" (3.5.2)
ppm	Gas unit	See "Select Gas type" (3.5.2)

¹ Dependent on the configuration of the System.

Select Sensor Point Status

Symbol	Setting Status	Function
A	A N	A = Sensor Point active N = Sensor Point non active

Activate the connected Sensor Point for control Mode.

Select Gas type

Symbol	Setting Gas type	Unit	Gas
CO	CO	ppm	Carbon monoxide
	NO	ppm	Nitric monoxide
	NO ₂	ppm	Nitric dioxide
	NH ₃	ppm	Ammonia
	O ₂	%v/v	Oxygen
	Ex	%LEL	Combustible Gas
	R11	ppm	Refrigerant Gas
	R123	ppm	Refrigerant Gas
	R134A	ppm	Refrigerant Gas
	R22	ppm	Refrigerant Gas
TEM	°F	Temperature	
RH	%RH	Humidity	

Select the Gas type for the connected Sensor Point

Select Control Mode

Symbol	Setting Control Mode	Function
CV	CV AV	CV = Current value mode ¹ AV = Average value mode ²

¹ Current value Mode: alarms are set in dependence to Current value.

² Average value Mode: alarms are set in dependence to Average value.

See also "Time factor to the calculating of the Average value"

Set Threshold by Sensor Point failure

Symbol	Setting Threshold at SP Fault	Function
nnn (L M H)	L M H	n = Set no Threshold at SP Fault L = Set Low Threshold at SP Fault M = Set Med Threshold at SP Fault H = Set High Threshold at SP Fault

A failure at the Sensor Point activates the selected Threshold
It can assigned one or more Threshold

Assigning Sensor Point to analog output (AO)

Symbol	Connect SP to AO	Function
0	0 1 2	0 = SP not assigned to AO 1 = SP assigned to AO 1 2 = SP assigned to AO 2

The MGC has 2 analog output (AO) with 4 to 20 mA. Each AO can be assigned to one or more Sensor Point.
The Sensor Point sends the current- or average value, in dependence of the operating mode, to the AO.

Definition of the measuring range

Symbol	Set Measuring Range	Function
250	250	250 = Measuring range for CO

Definet the measuring range of the gas type.

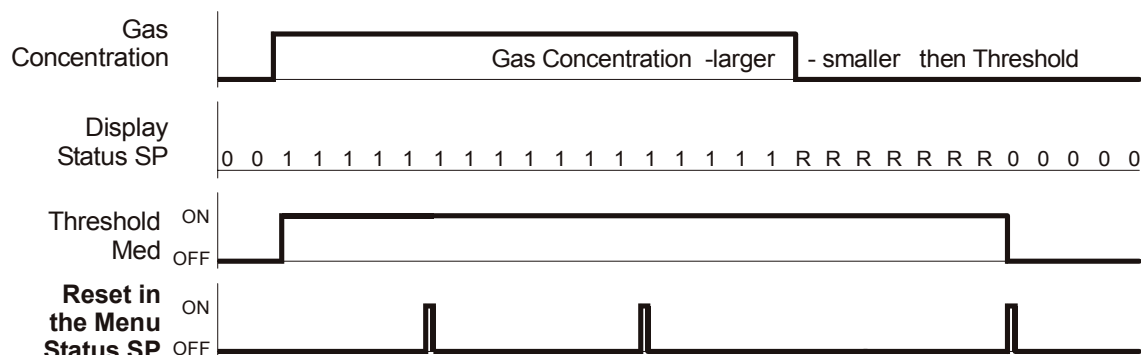
Activate Latching Mode for Threshold

Symbol	Set Function	Function
L-M-H-	-	- = Latching Function non active
	+	+ = Latching Function active

The latching mode can be activate for one or more Threshold.

Example:

Med Alarm with latching Function (L- M+ H-)



Time factor¹ to the calculating of the Average value

Symbol	Set Time	Function
1800	1800	1800 = Time factor ¹ in sec. (half hour average value)

¹ Time for building an average-value. Within this time-unit 10 values are saved and arithmetic average values are made out of then.

Assigned Relay to Threshold¹

Symbol	Assig	Function
SP#XX 0 0 0 0 0 0 0 0	0	0 = Threshold non assigned to Relay
LOW 0 0 0 0 0 0 0 0	1	1 = Threshold assigned to Relay

Here the assignment of the relay to the Threshold occurs.

¹ It is the same Prozedure for Low- Med- and High- Threshold.
It can assigned one or more Relay to each Threshold.

Special feature MGC-4

The internal horn is at the aoutput 5, Relay 5, connected.

3.5.3 Setup Relay (Sub Menu 1)

- Set parameters for each Relay.
(Security level 2)

R#XX	ON	OFF
0	s 01	s 01

↔ Next Relay

Window Setup Relay legend

Symbol	Description	Function
R#XX	Relay number	(1 to max. 18 ¹)

¹ Dependent on the configuration of the System.

Set Relay Mode

Symbol	Set Mode	Function
0	0	0 = Relay Mode de-energized
	1	1 = Relay Mode energized (fail-safe)

Selected the operating mode for each relay

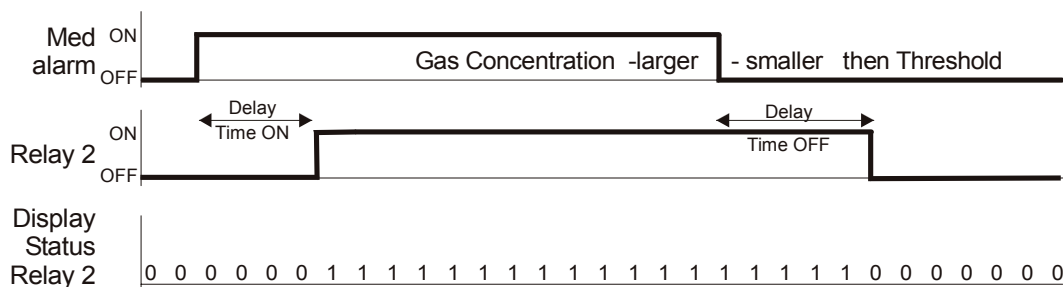
Set delay Time for ON and OFF

Symbol	Set Time	Function
ON s 1	1 to 9999	ON = Delay Time ON (sec.)
OFF s 1	1 to 9999	OFF = Delay Time OFF (sec.)

Set the delay Time for each relay

Example:

Relay 2 with Delay Time ON and OFF



Symbol	Set Function	Function
–	–	– = Non latching Mode
–	+	+ = Latching Mode

Timing diagram for the Gas Concentration Alarm system:

- Med alarm:** ON when Gas Concentration is larger than the threshold; OFF when it is smaller.
- Display Status Relay 2:** Shows a sequence of 1s and 0s. The first sequence of 1s corresponds to the first alarm event, and the second sequence of 1s corresponds to the second alarm event.
- Relay 2:** ON during the first sequence of 1s and OFF during the second sequence of 1s.
- Reset in the Menu Status Relay:** Has three short pulses corresponding to the transitions between the two sequences of 1s.

DI-XX	000000000
Horn	000000000

Symbol	Set Reset	Function
DI#XX		Digital Input No (1 to 4)
<div> <div> <div>DI#01</div> <div>Horn</div> </div> <div> <div>0 0 0 0 0 0 0 0</div> <div>0 0 0 0 0 0 0 0</div> </div> <div> <div>Relay No.</div> <div>01 to 09</div> <div>10 to 18</div> </div> </div>	<div>0</div> <div>1</div>	<div>0 = Non Reset Horn Relay</div> <div>1 = Reset Horn Relay</div>

Specification subject to change without notice.
Printed in USA 030918

3.5.5 Setup Date and Time (Sub Menu 1)

- Setup Date and Time (*Security level 1*)

Date / Time 08.15.03 Sa	Setup Date
↔←	
Date / Time 01 : 20 pm	Setup Time

3.5.6 Setup Analog Output (Sub Menu 1)

- The MGC¹ has 2 analog Output (AO) with 4 to 20 mA signal. Everyone AO can be assigned to one or more Sensor Point. The Sensor Point sends the current- or average value, in dependance of the operating mode, to the AO. (*Security level 2*)
¹ The MGC 4 has 1 Analog Output
- The hardware of the both analog output are always at the AI-8 module no 1.

Calibration AO#01 4mA =42 20mA
↔←
Function AO#01 Ave

Calibration analog Output¹

The analog Output was calibrated by the manufacturer. A calibration during the installation is normally not necessary.

- Ammeter with measuring range 0 to 100 mA to connect at the Analog Output.
- Changing the number 42 in the menu Calibration until at the ammeter displays 4 mA.
Changing the number 144 in the menu Calibration until at the ammeter displays 20 mA.

Setup the AO Function¹

Window Setup AO legend

Symbol	Set Function	Function
AO#01		Analog Output AO number 1 or 2
Ave	Ave Max Min	Ave = Average value of all assigned SP Max = Max. value of all assigned SP Min = Min. value of all assigned SP

¹ It is the same Prozedure for AO 1 and AO 2

4 Mounting / Electrical Connection

All installation works of MGC must be carried out according to local regulations for safety and accident prevention.

4.1 Mounting

The location must respect the following recommendations in order to ensure proper operation.

- Mount on solid, vertical and shock free wall.
- Avoid locations with high temperature and humidity changes.
- Avoid locations where direct sun light may occur General Recommendations.
- Avoid locations near to devices with high radio frequency radiation.
- For best operation and maintenance mount the equipment at a height of 4 to 5 feet (1.4 meters) (lower edge).
- Check free space when mounting next to doors, opening of door must be possible.

4.2 Electrical Connection

- Power off and remove all power lines during wiring works.
- Installation and power connection works according to wiring diagram (See Field wiring, 7) must only be carried out by qualified specialists for electrical works and according to valid regulations.
- Use shielded wires for signal lines to avoid external interrupts.
- Do not install the equipment next to electromagnetic and high-frequency components as thyristor power switches, frequency transformers and other high frequency transmitters.
- Do not use power supply lines that are connected to power switches and neon lamps.
- Power switches and equipment, that is sending interrupts (alarm horns), must be connected via interrupt prevention components as RC-controller or varistors.
- Electric lines must be installed according to EMV norms.

5 Start-up operation

Only trained technicians should perform the following:

- Remove (cut off) cable tie of DIO- and AI8- module (protection) for shipment only.
- Check the adress for every Module (See Field wiring for each Module).
- Connect MGC to power supply.
- Connect transmitters to the AI - module. (See Field wiring for each AI module).
- Connect the Relay to the Alarm Units. (See Field wiring for each DIO module).
- Turn breaker 1F1 ON (See internal wiring)
The red LED, Failure Status, must not flash.
- Configure the MGC via Keypad Use Interface. (Menu System Setup).
 - System Configuration
 - Date and Time
 - Thresholds
 - Sensor Point setup
 - Relay setup
 - Digital Input setup
 - Analog Output setup

6 Specifications

Electrical		
Power supply Request		120 VAC, - 10% +20%, 50/60 Hz resetable breaker 24 V AC
Power consumption ¹	MGC - 4...	20 VA, max.
	MGC - 8...	30 VA, max.
	MGC - 16..	35 VA, max.
	MGC - 24...	40 VA, max. ¹ without external Units
Analog Input		Four (4) to max. twenty-four (24)
- signal		4 to 20 mA
- Input resistor		245 Ω
- Power supply		21 VDC, 100 mA per channel, overload and short circuit protected
Analog Output		Selectable to each Sensor Point
- signal		Two (2) (MGC- 4 = One (1))
- signal		4 to 20 mA, overload and short circuit protected
- load resistor		max. 500 Ω
Digital Input		Four (4) Can be individually assigned to any relay for Relay Reset Potentialfree w/status LED
Relay Outputs		Five (5), nine (9) or eighteen (18) w/status LED
- contact		24 VAC/VDC - 250 VAC, 5 A max., potentialfree
RFI/EMI protection		4.0 W @ 3 ft. (1 m) radiated
Type of Control		
General		Low, Med and High alarm level control
Analog reading		Current and mean (average) value
Thresholds trip/setpoints		Field adjustable over full range, three (3) per Sensor Point
Hysteresis / switching differential		Selectable for each Sensor Point
Time delay of switching		Selectable for ON and OFF of each relay (1 to 9999 sec.)
Low, med, high Threshold		Assignable to any relay
Failure		Power or Sensor failure
Gas Type		CO;NO; NO ₂ ; NH ₃ ; O ₂ ; Ex; R11; R12; R123; R134A;R22; TEM; RH
Latching Function		Selectable for each Threshold and relay
User Interface		
Keypad type		Refer to "illustration DBT"
Touch buttons		Six (6)
Status LED's		Two (2) Threshold ON = yellow; Failure = red
Digital display		Two line LCD, 16 digits per line, 1 digit resolution, backlight
Environmental		
Permissible ambient		
- working temperature		32 °F to 104 °F (0 °C to 40 °C)
- storage temperature		- 4 °F to 140 °F (-20 °C to + 60 °C)
- humidity		15 to 95 % RH non condensing

Specifications (cont.)

Physical	
Enclosure MGC-4/5	
- material	Steel case
- color	Light beige (RAL 7032)
- protection	NEMA 3 (IP 55)
- installation	Wall (surface) mounted
- Dimensions (H x W x D)	11.81 x 11.81 x 5.90 in. (300 x 300 x 150 mm)
Enclosure MGC-8/9/- 8/18 –16/9	
- material	Polyester
- color	Light beige (RAL 7032)
- protection	NEMA 4 X (IP 66)
- installation	Wall (surface) mounted
- Dimensions (H x W x D)	20.88 x 16.93 x 7.87 in. (530 x 430 x 200 mm)
Enclosure MGC-16/18 – 24/9 -24/18	
- material	Polyester
- color	Light beige (RAL 7032)
- protection	NEMA 4 X (IP 66)
- installation	Wall (surface) mounted
- Dimensions (H x W x D)	29.33 x 21.06 x 11.81 in. (745 x 535 x 300 mm)
Weight	
- MGC – 04/05	27 lbs. (12 kg)
- MGC – 16/09; - 08/18; - 08/09	44 lbs. (19 kg)
- MGC - 24/18; - 24/09; - 16/18	60 lbs. (26 kg)
Cable entry	Holes for ½ in. conduit, covered
Wire connection	Terminal blocks, screw type for lead wire
Wire size	Min 24 AWG (0.25 mm ²), max. 14 AWG (2.50 mm ²)
Approvals / Listings	
	CE
	VDI 2053*
	EMV- Compliance 89/336/EWG
	City of Los Angeles approval*
Warranty	
	Two years material and workmanship
	* = Pending

7 Parametertable

7.1 Parametertable Setup Sensor Point

SP No (Def =Default)	Gastype	CV/AV Mode	Range	Threshold level			Hysteresis	Status	Latching (L;M,or H)	Set Threshold by Failure	Time AV sec.	Assinged Threshold to Relay No (One or More)		
				Low	Med	High						Low	Med	High
Def	CO ppm	CV	300	50	75	100	15	A	---	n n n	1800	1	0	2
01/A														
Def	CO ppm	CV	300	50	75	100	15	N	---	n n n	1800	0	0	0
02/A														
03/A														
04/A														
Maximum Sensor Point number at MGC -4														
05/A														
06/A														
07/A														
08/A														
Maximum Sensor Point number at MGC -8 XX														
09/A														
10/A														
11/A														
12/A														
13/A														
14/A														
15/A														
16/A														
Maximum Sensor Point number at MGC -16 XX														
17/A														
18/A														
19/A														
20/A														
21/A														
22/A														
23/A														
24/A														
Maximum Sensor Point number at MGC -24 XX														

7.2 Parametertable Setup Relay

Relay No	Mode	Time ON (sec.)	Time OFF (sec.)	Set Latching	Reset with Digital Input No.
Default	0	01	01	-	0
01					
02					
03					
04					
05					
Maximum Relav number at MGC 4					
06					
07					
08					
09					
Maximum Relav number at MGC XX- 9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
Maximum Relav number at MGC XX -18					

7.3 Parametertable Configuration

No.	Function	Default	Actuell
01	System Config	MGC 24/18	
02	Service Mode	OFF	
03	Power ON delay Time	20 sec.	
04	Response Time	5 sec.	
05	Password level 1	1,2,3,4	
06	Calibration AO 1	42 144	
07	Function Mode AO 1	Ave	
08	Calibartion AO 2	42 144	
09	Function Mode AO2	Ave	

8 Notes and General Information

It is important to read user manual thoroughly and clearly understand the information and instructions. The PolyGard® MGC Gas monitoring, control and alarm system must be used within product specification capabilities. The appropriate operating and maintenance instructions and recommendations must be followed.

Due to ongoing product development, MSR reserves the right to change specifications without notice. The information contained herein is based upon data considered to be accurate. However, no guarantee is expressed or implied regarding the accuracy of this data.

8.1 Intended product application

The PolyGard® MGC are designed and manufactured for control applications for energy savings and OSHA air quality compliance in commercial buildings and manufacturing plants (i.e., detection and automatic exhaust fan control for automotive maintenance facilities, enclosed parking garages, engine repair shops, warehouses with forklifts, fire stations, tunnels, etc.).

8.2 Installers' responsibilities

It is the installer's responsibility to ensure that all PolyGard® MGC are installed in compliance with all national and local codes and OSHA requirements. Installation should be implemented only by individuals familiar with proper installation techniques and with codes, standards and proper safety procedures for control installations and the latest edition of the National Electrical Code (ANSI/NFPA70). It is also essential to strictly follow all instructions as provided in the user manual.

8.3 Maintenance

It is recommended that the PolyGard® MGC performance check is done on a routine schedule. Any performance deviations may be serviced based on needed requirements.

8.4 Limited warranty

MSR and INTEC Controls warrant the PolyGard® MGC for a period of two (2) years from the date of shipment against defects in material or workmanship. Should any evidence of defects in material or workmanship occur during the warranty period, MSR or INTEC Controls will repair or replace the product at their own discretion, without charge.

This warranty does not apply to units that have been altered, had repair attempted, or been subjected to abuse, accidental or otherwise. The above warranty is in lieu of all other express warranties, obligations or liabilities.

This warranty extends only to the PolyGard® MGC. MSR and INTEC Controls shall not be liable for any incidental or consequential damages arising out of or related to the use of the PolyGard® MGC.

8.5 Return instructions

If the PolyGard® MGC needs to be returned to INTEC Controls for service, an RMA number must be obtained prior to sending.

9 Wiring Diagramm and Dimension